Epitomes

Important Advances in Clinical Medicine

Anesthesiology

Scott Kelley, MD, Section Editor

The Council on Scientific Affairs of the California Medical Association presents the following epitomes of progress in anesthesiology. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and clinical importance. The items are presented in simple epitome, and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, researchers, and scholars to stay abreast of progress in medicine, whether in their own field of special interest or another.

The epitomes included here were selected by the Advisory Panel to the Section on Anesthesiology of the California Medical Association, and the summaries were prepared under the direction of Scott Kelley, MD, and the panel.

Laryngeal Mask Airway

THE LARYNGEAL MASK AIRWAY was developed in 1981 as an alternative technique for airway management during general anesthesia. It was designed to provide an end-to-end connection between the anatomical airway (larynx) and an external breathing system. Its safety and efficacy as a general-purpose airway have been well documented since its introduction into the United States in 1992. As clinicians have become experienced using the laryngeal mask airway for simple elective procedures, its role in more specialized and emergent procedures is expanding.

This airway is popular for the many ambulatory surgical procedures that do not require endotracheal intubation. The resultant avoidance of laryngoscopy and muscle relaxants reduces the potential for dental damage, sore throat, myalgias, residual muscle weakness, and nausea and vomiting. Although it was initially suggested to limit its use to cases of less than two hours in duration, in a growing number of reports, it is being used in cases exceeding four hours. The laryngeal mask airway can be used in 35% to 40% of a typical ambulatory surgery caseload; individual laryngeal mask airways can be reused more than 100 times. These factors, combined with decreased drug needs and costs, make this airway the most cost-effective airway management technique for patients not requiring endotracheal intubation.

The laryngeal mask airway has a definite role in the management of difficult airways. When faced with the "can't ventilate–can't intubate" scenario, there are several options: laryngeal mask airway insertion, double-lumen esophagotracheal tube insertion, transtracheal jet ventilation, or the establishment of a surgical airway. In any emergent situation, it is wise to "do what you do best." Laryngeal mask airway insertion is the only technique that anesthesiologists can use in routine practice, thus maintaining clinical competency. Once an airway is secured, fiberoptic bronchoscopy or intubation can be done through the device, if necessary, and a 6 mm-in-internal-diameter endotracheal tube inserted through sizes 3 and 4.

As clinicians have become experienced with the use of laryngeal mask airway in adults, its role in pediatric patients has also expanded. It is useful for neonatal resuscitation, diagnostic fiberoptic bronchoscopy, and securing the airway in patients with craniofacial abnormalities (such as the Pierre-Robin syndrome) or those having laser surgery (the treatment of port-wine stains). Children having repeated diagnostic or therapeutic radiologic procedures often require general anesthesia; the laryngeal mask airway affords easy airway control without the potential for subglottic mucosal damage from multiple endotracheal intubations. The advantages of using this airway for magnetic resonance imaging include the lack of ferromagnetic components and the maintenance of spontaneous ventilation, thus avoiding the need for bulky anesthetic equipment.

The safe use of the laryngeal mask airway for laparoscopic procedures or with positive pressure or controlled ventilation remains unverified. International experience suggests that it can be used successfully in these types of procedures, but further study is necessary.

A head and neck surgical procedure typically involves airway sharing between the anesthesiologist and surgeon. The standard laryngeal mask airway can be used in limited applications, but a reinforced laryngeal mask airway has recently been introduced into practice. This specialized airway features a longer, thinner, wire-wrapped tube portion that allows flexibility for better surgical exposure during dental extractions and maxillofacial procedures.

Ophthalmologic surgery is an area in which the laryngeal mask airway appears to be ideal for airway management. Studies have shown that its insertion does not cause the increases in intraocular pressure seen with laryngoscopy and certain muscle relaxants. Reduced coughing and straining on emergence and extubation of the airway are beneficial after a delicate intraocular procedure.

The primary contraindication to laryngeal mask airway use is in patients at increased risk of gastric aspiration, such